



# What People With Asthma Need to Know About Osteoporosis

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## What Is Asthma?

Asthma is a chronic lung disease that affects about 15 million Americans, more than five million of whom are under the age of 18. Asthma is becoming more common, and African Americans are especially at risk. For a person with asthma, everyday things can trigger an attack. These things include air pollution, allergens, exercise, infections, emotional upset, or certain foods.

Typical asthma symptoms include coughing, wheezing, tightness in the chest, difficulty breathing, a rapid heart rate, and sweating. Children with asthma often complain of an itchy upper chest or develop a dry cough. These may be the only signs of an asthma attack.

Asthma itself does not pose a threat to bone health. However, certain medications used to treat the disease and some behaviors triggered by concern over the disease can have a negative impact on the skeleton.

## What Is Osteoporosis?

Osteoporosis is a condition in which the bones become less dense and more likely to fracture. Fractures from osteoporosis can result in significant pain and disability. Osteoporosis is a major health threat for an estimated 44 million Americans, 68 percent of whom are women.

Risk factors for developing osteoporosis include:

- being thin or having a small frame
- having a family history of the disease

- for women, being postmenopausal, having an early menopause, or not having menstrual periods (amenorrhea)
- using certain medications, such as glucocorticoids
- not getting enough calcium
- not getting enough physical activity
- smoking
- drinking too much alcohol.

Osteoporosis is a silent disease that can often be prevented. However, if undetected, it can progress for many years without symptoms until a fracture occurs.

## **The Connection Between Asthma and Osteoporosis**

People with asthma tend to be at increased risk for osteoporosis, especially in the spine, for several reasons. First, anti-inflammatory medications, known as glucocorticoids, are commonly prescribed for asthma. When taken by mouth, these medications can decrease calcium absorbed from food, increase calcium lost from the kidneys, and decrease bone formation. Doses of more than 7.5 mg (milligrams) each day can cause significant bone loss, particularly during the first year of use. Corticosteroids also interfere with the production of sex hormones in both women and men, which can contribute to bone loss, and they can cause muscle weakness, which can increase the risk of falling and related fractures.

Many asthma sufferers think that milk and dairy products trigger asthmatic attacks, although the evidence shows that this is only likely to be true if the person has a dairy allergy. This unnecessary avoidance of calcium-rich dairy products can be especially damaging for children with asthma who need calcium to build strong bones.

Since exercise often can trigger an asthma attack, many people with asthma avoid weight-bearing physical activities that are known to strengthen bone. Those people who remain physically active often choose swimming as their first exercise of choice because it is less likely than other activities to trigger an asthmatic attack. Unfortunately, swimming does not have the same beneficial impact on bone health as weight-bearing exercises that work the body against gravity. These exercises include walking, jogging, racquet sports, basketball, volleyball, aerobics, dancing, and lifting weights.

## Osteoporosis Management Strategies

Strategies to prevent and treat osteoporosis in people with asthma are not significantly different from the strategies for those who do not have the disease.

**Nutrition:** A diet rich in calcium and vitamin D is important for healthy bones. Good sources of calcium include low-fat dairy products; dark green, leafy vegetables; and calcium-fortified foods and beverages. Also, supplements can help ensure that the calcium requirement is met each day, especially in those with a proven milk allergy.

Vitamin D plays an important role in calcium absorption and bone health. It is made in the skin through exposure to sunlight. While many people are able to obtain enough vitamin D naturally and/or from fortified foods, some individuals may require vitamin D supplements in order to ensure an adequate daily intake.

**Exercise:** Like muscle, bone is living tissue that responds to exercise by becoming stronger. The best kind of activity for your bones is weight-bearing exercise that forces you to work against gravity. Some examples include walking, climbing stairs, lifting weights, and dancing.

People who experience exercise-induced asthma should exercise in an environmentally controlled facility and participate in activities that fall within their limitations. They may also use medication when necessary to enable them to exercise.

**Healthy lifestyle:** Smoking is bad for bones as well as the heart and lungs. Women who smoke tend to go through menopause earlier, triggering earlier bone loss. In addition, smokers may absorb less calcium from their diets. Alcohol can also negatively affect bone health. Those who drink heavily are more prone to bone loss and fracture, because of both poor nutrition and an increased risk of falling.

Reducing exposure to asthma triggers, such as irritants and allergens, can help lessen a person's reliance on glucocorticoid medication. Avoiding people with colds and other respiratory infections and minimizing emotional stress can also be important.

**Bone density test:** Specialized tests known as bone mineral density (BMD) tests measure bone density at various sites of the body. These tests can detect osteoporosis before a fracture occurs and predict one's chances of fracturing in the future. People with asthma, particularly those receiving glucocorticoid therapy for 2 months or more, should talk to their doctors about whether they might be candidates for a bone mineral density test.

**Medication:** Like asthma, osteoporosis is a disease with no cure. However, there are medications available to prevent and treat osteoporosis. Several medications (alendronate, risedronate, ibandronate, raloxifene, calcitonin, teriparatide, and estrogen/hormone therapy) are approved by the Food and Drug Administration for the prevention and/or treatment of osteoporosis in postmenopausal women. Alendronate is also approved for use in men. For people with asthma who develop or may develop glucocorticoid-induced osteoporosis, alendronate has been approved to treat this condition and risedronate has been approved to treat and prevent it.

Because of their effectiveness in controlling asthma with fewer side effects, inhaled glucocorticoids are preferred to oral forms of the medication. Since bone loss tends to increase with increased glucocorticoid doses and prolonged use, the lowest possible dose for the shortest period of time that controls asthma symptoms is recommended.

## **Resources**

**For additional information on osteoporosis,** visit the National Institutes of Health Osteoporosis and Related Bone Diseases ~ National Resource Center Web site at [www.niams.nih.gov/bone](http://www.niams.nih.gov/bone) or call 1-800-624-2663.

**For additional information on asthma,** visit the National Heart, Lung, and Blood Institute Web site at [www.nhlbi.nih.gov](http://www.nhlbi.nih.gov).

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## **For Your Information**

This publication contains information about medications used to treat the health condition discussed here. When this fact sheet was printed, we included the most up-to-date (accurate) information available. Occasionally, new information on medication is released.

For updates and for any questions about any medications you are taking, please contact the U.S. Food and Drug Administration at 1-888-INFO-FDA (1-888-463-6332, a toll-free call) or visit their Web site at [www.fda.gov](http://www.fda.gov).